Retinal break or tear

**DESCRIPTION**
A retinal break refers to a full thickness defect in the sensory retina. When a break is associated with vitreous traction, it is termed a retinal tear. Retinal breaks or tears are most often associated with:
● Posterior vitreous detachment (PVD)
● Blunt or penetrating trauma.

Retinal breaks may also be associated with developmental or degenerative retinal abnormalities causing retinal thinning, such as myopia or lattice degeneration.

**SYMPTOMS**
Acute retinal breaks are usually associated with symptoms, with flashing lights (photopsia), often in the periphery; one or more floaters of recent onset, or there may be a recent history of head or ocular trauma. However, chronic retinal breaks or atrophic holes may not cause symptoms.

**SIGNS**
Breaks are red-coloured lesions, as the retinal pigment epithelium (RPE) and choroid are not covered by the retina.
● Flap (or horseshoe) tear: a tractional retinal tear where a flap of retina is created in a triangular shape, with the base still attached. Flap tears have a greater risk than other breaks for retinal detachment (RD) because the break is held open.
● Operculated tear: A tractional retinal tear where an area of retina (an operculum) is pulled completely free by the vitreous. Vitreous traction on the surrounding retina is relieved.
● Retinal dialysis: a dis-insertion or tearing of the anterior retinal attachment near the pars plana. Retinal dialyses often arise from blunt trauma to the globe.
● Giant tear: a traumatic or spontaneous tear stretching more than 90 degrees.
● Retinal holes: Atrophic retinal holes are the most common retinal break; these are round breaks without retinal traction. They may be associated with peripheral retinal degenerations such as lattice, retinoschisis or white without pressure; are usually chronic and the risk of RD is lower than retinal tears.

Breaks are more frequent in the retinal periphery although they may occur anywhere. Signs associated with an acute break may include PVD, the presence of sub-retinal fluid, vitreous haemorrhage if the tear bridges a blood vessel, or pigment clumps (‘tobacco dust’) in the anterior vitreous. A ring of pigmentation (RPE hyperplasia) surrounding a retinal break is suggestive of chronicity.

**PREVALENCE**
Uncommon in the general population (approximately 1/1,000). After a symptomatic PVD, the prevalence of retinal tears is approximately a 15 per cent.

**SIGNIFICANCE**
If a retinal break allows liquified vitreous to enter the subretinal space, the retina may separate from the RPE, causing a rhegmatogenous RD.

**DIFFERENTIAL DIAGNOSIS**
Retinal detachment classification, Lattice degeneration.

**SEE ALSO**
Posterior vitreous detachment, Macular hole, Choroidal detachment, White without pressure, Retinoschisis – acquired degenerative.

**MANAGEMENT**

Ocular tests
Important techniques include indirect ophthalmoscopy with scleral depression for both eyes, and slit-lamp examination with a fundus contact lens.

**Indications for treatment**
Each case must be assessed individually, but treatment is usually recommended for retinal breaks in association with any of the following risk factors:
● Presence of symptoms, such as photopsia or floaters, particularly with flap or operculated tears
● Recent ocular trauma, particularly with dialysis or giant tears
● Aphakia or pseudophakia
● Previous RD in either eye
● Forthcoming ocular surgery
● Tractive tears at the edge of lattice lesions

● Subretinal fluid or elevation of more than one disc diameter
● Vitreous haemorrhage or ‘tobacco dust’
● Retinal infections, high myopia, or other conditions associated with retinal thinning.

**Laser surgery**
Laser photocoagulation, delivered with either a slit lamp or indirect ophthalmoscopic system, may be the treatment of choice for smaller lesions. Therapy aims to create an adhesion between the tissues by causing RPE hyperplasia and a choriretinal scar.

**Incisional surgery or cryotherapy**
Cryotherapy or retinal surgery may be indicated for larger lesions including retinal dialysis or giant tears.

**Review**
If symptoms do not accompany a retinal break and there are no other risk factors, the risk of RRD may be low enough that observation is appropriate. Consider monitoring for the development of risk factors in a binary schedule (six-week, three-month, six-month, 12-month). If RPE hyperplasia or a choriretinal scar forms around the break, the risk of RRD is much reduced.

**Advice**
The likelihood of a retinal detachment associated with a retinal tear is greatest within the first few days of the onset of symptoms. Patients at risk of retinal detachment are advised to attend immediately if they notice a peripheral vision change, shower of floaters, light flashes or ‘spider webs’.

The full series of these articles is available in the book *Posterior Eye Disease and Glaucoma A-Z* by Bruce AS, O’Day J, McKay D and Swann P. £39.99. For further information click on the Bookstore at [opticianonline.net](http://opticianonline.net).

- Adrian Bruce is a Chief Optometrist at the Victorian College of Optometry and a Senior Fellow, Department of Optometry and Vision Sciences, The University of Melbourne.
- Justin O’Day is an Associate Professor in the Department of Ophthalmology, The University of Melbourne and Head Of Neuro-Ophthalmology Clinic, Royal Victorian Eye and Ear Hospital.
- Daniel McKay is a Medical Officer at the Royal Victorian Eye & Ear Hospital.
- Peter Swann is Associate Professor in the School of Optometry, Queensland University of Technology.

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